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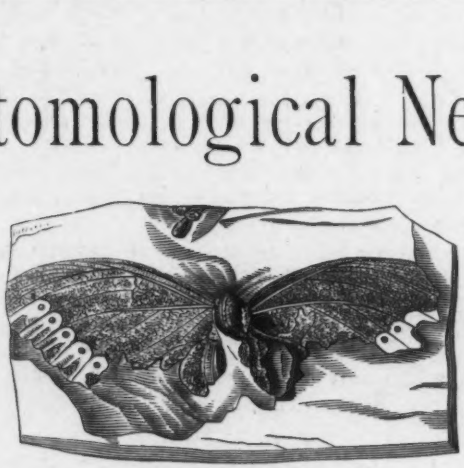
Entomological News



ARGYNNIS PLUTO.
(Fossil butterfly)

OCTOBER, 1898.

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ENTOMOLOGICAL NEWS

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PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. IX. OCTOBER, 1898. No. 8.

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NEW COCCIDÆ FROM CALIFORNIA.

By EDW. M. EHRHORN.

Kermes cockerelli n. sp. ♀.—Scale 5 mm. long 4.5 mm. broad and 4 mm. high, deeply segmented, dorsum usually marked with black lines and spots along the sutures, some specimens not showing any. There is a broad, median, longitudinal groove, where the segmentation is obsolete; on each side of this the segments are strongly gibbous. Color light brown, without any conspicuous black specks; derm, by transmitted light, brown with numerous oval glands, several large pustulæ on body. Antennæ very small, 6-jointed, 3 very large, longer than the three following together; the others short, very little longer than 5, 4 shortest. Larva elongated oval, rather more than twice as long as broad, yellow, greatest breadth behind the middle of body. Eyes red, caudal tubercles quite large, each bearing one long bristle and three stout spines, one near bristle and one on the outer and inner margin of tubercle. On the anterior margin of the head are six bristles; the sides of the abdominal segments are armed with stout, but not very long bristles. Antennæ cylindrical, 6-jointed, formula (36) (12) 45, last joint rounded at tip with several hairs, one very long; rostral loop extending half way between base of third pair of legs and anal ring. Legs quite large, claw long and curved; tibia shorter than tarsus.

Hab.—On twigs of *Quercus lobata* at Mountain View, Cal. Very much parasitized by undetermined *Chalcid.*

Kermes nigropunctatus Ehrhorn and Cockerell n. sp. ♀.—Scale 4.5 mm. long, 5.5 broad, nearly 4 high, not very pale ochreous, speckled all over with black, the black specks so small as to be readily overlooked without the use of a lens; segmentation obscure, but discernible, the sutures slightly impressed and marked by more or less pallid transverse bands; an obscure median longitudinal depressed line; underside of scale where it touches the bark, flattened and entirely dark brown; derm by transmitted light yellow with numerous round glands. Antennæ small, 6-jointed, 3 very long, about as long as 4, 5 and 6 together; joints 2 and 4 subequal and smallest. Formula 3165 (24). Larva oval, about one and a half times longer than broad, pink; greatest breadth about the middle; caudal tubercles large and distinct, each bearing a moderately long bristle and three stout spines, one on the outer and inner margin and one near bristle. The sides of the abdominal segments are armed with stout, short bristles. Antennæ cylindrical, 6-jointed, formula 361 (45) 2; last joint rounded at tip with several hairs; joint 5 with a hair; rostral loop extending beyond third pair of legs; anal ring with six hairs. Legs stout, claw long and curved; tibia much shorter than tarsus.

Hab.—Los Angeles, Cal., on twigs of *Quercus*. Collected by Mr. Craw.

The larvæ were found in body of ♀. It is something like *K. galliformis*, but distinguished by the impressed sutures. It is much smaller and paler than *K. gillettei*.

Pulvinaria rhois n. sp. ♀.—Found on limbs and underside of leaves single and in clusters. Length of ♀ with ovisac about 9 mm., width about 3.5 mm.; scale brown, largely covered with white secretion, ovisac snow-white, distinctly grooved longitudinally, sometimes curved, sometimes lifting scale off limb; scale shrunken, broadly oval, clay color, ♀ before forming ovisac something like *Lecanium hesperidum*, but more convex, reddish brown; anal plates distinct; dorsum covered with white, waxy secretion in rows, the mesal row has the largest secretions and they diminish in size as they approach the margin; edge of scale has short, simple hairs, in each anterior incision is a large spine with a short one on each side. Anal plates yellowish brown, longer than broad, forming a diamond when closed; two very small spines at tip; anogenital ring with six long hairs; rostral loop reaching to middle pair of legs. Antennæ 8-jointed, formula 3 (124) 5867; joint 3 much the longest. Joints 2, 4, 5 and 6 each with long hair, 8 with several hairs. Legs ordinary, coxa and trochanter very stout, tarsus half as long as femur; tarsal digitules long fine hairs with knobs; digitules of claw very stout, gradually widening to large knobs. Larva light yellow, flattish, elliptical, about .5 mm. long. ♂ scales small, oval, black, with numerous pale wart like prominences.

Hab.—On *Rhus diversiloba* at Mountain View, Cal.

TWO NEW GENERA OF SAND WASPS.

By WILLIAM H. ASHMEAD.
(Assistant Curator Department of Insects U. S. Nat. Museum.)

Family NYSSONIDÆ.

FOXIA n. g.

Habitus of *Nysson* Latr. (*sens. str.*), but differs as follows: The second and third submarginal cells each receiving a recurrent nervure, the first received by the petiolated second before its middle, the second received by the third at its basal one-third; forehead at middle with a tubercle or carina just above base of antennæ; ventral segments 4–5 in ♀ with a lateral tooth, lateral margins of pygidium towards apex serrated; ventral segments 4–6 in ♂ with a lateral tooth, the pygidium at apex tridentate, the middle tooth minute, otherwise hind tibiæ, scutellums, etc., as in *Nysson* Latr., but not *Paranysson*, which I consider to be a distinct genus.

Dedicated to my friend, the energetic young hymenopterist, Mr. Wm. J. Fox, of Philadelphia, Pa.

(1) **Foxia pacifica** n. sp. ♂♀.—Length 6–6.5 mm. Head and thorax black, rugoso-punctate, the head, except vertex, collar, mesopleura and metathoracic spines clothed with a dense silvery pubescence; mandibles, hind legs, except coxæ and abdomen, mostly rufous; four anterior legs except the anterior tibiæ within and their tarsi and the middle tarsi, which are ferruginous, black; the dorsal abdominal segments are narrowly margined with white at apex, while the three or four apical segments are more or less black or blackish.

Hab.—Los Angeles, Cal. Collected by D. W. Coquillett.

Type No. 5017, U. S. Nat. Mus.

Family LARRIDÆ.

MISCOPHINUS n. g.

Allied to *Saliostethus* Brauns, but the wings normal, the marginal cell not triangular, but as in *Miscophus*, subtruncate at apex; submedian cell shorter than the median; cubitus in hind wings originating beyond the transverse median; eyes large, extending to base of mandibles, slightly convergent above; mandibles deeply excised beneath a little before the middle; maxillary palpi 6-jointed, the first joint the shortest, the following rather long, subequal; labial palpi apparently but 3-jointed; clypeus not sepa-

rated from the face by a distinct suture, the anterior margin slightly arcuate, with a triangular emargination or incision on either side; antennæ filiform, the scape clavate; ocelli normal, arranged in a triangle; occiput with a transverse furrow between the raised occipital margin and the base of vertex; metathorax fully as long as the mesonotum with a delicate median carina; tibial spurs long, 1, 1, 2; iibiæ with a few black spines; anterior tarsi in ♀ combed.

Type *Miscophinus laticeps.*

TABLE OF SPECIES.

Black.

Head not twice as wide as the thorax . . . . . 2.

Head twice as wide as the thorax.

Scape, pedicel, tegulæ and legs rufous ♀ . . . . (1) **M. laticeps.**

2. Abdomen black, the extreme apex of the second segment testaceous, ventral segments with a row of sparse, stiff black hairs at apical margins; all coxæ and femora *above* black, trochanters and rest of legs, and the scape, rufous . . . (2) **M. californicus.**

Abdomen mostly rufous, the two or three terminal segments obfuscated or blackish; legs, scape, pedicel, clypeus, mandibles, tegulæ, ferruginous; prothorax brownish . . (3) **M. texanus.**

(1) **Miscophinus laticeps** n. sp. ♀.—Length 5 mm. Black, closely finely punctate, opaque; face, sides of collar and the meso- and metapleura silvery sericeous; clypeus, mandibles, except tips and legs, rufous; tegulæ and palpi paler; wings hyaline, the apical third fuscous. The head is unusually wide, twice as wide as the thorax; pronotum fully as long as the mesonotum; posterior face of metathorax transversely striate, with a median sulcus; tibiæ with some sparse black spines, their spurs long, black; anterior tibiæ with a sparse comb; transverse median nervure in front wings joins the median vein a little before the origin of the basal nervure; the marginal cell is only about two-thirds the length of the first submarginal, triangular petiolate, the petiole being as long as either side of the cell.

Hab.—Sacramento Co., Cal. Taken in July by A. Koebele. Type No. 5018, U. S. Nat. Mus.

(2) **Miscophinus californicus** n. sp. ♂.—Length 4 mm. Structurally, resembles the former species, except the head is not nearly so wide; the silvery pubescence is denser on the face, on the lower part of the mesopleura and on the front coxæ; the first, second and third dorsal abdominal segments *laterally* at apex also show more or less of the silvery pubescence; scape, mandibles, except tips, and tegulæ ferruginous; all coxæ and femora *above* black, trochanters and rest of legs rufous or ferruginous;

anterior tarsi with rather short spines; tibial spurs black; extreme apex of second abdominal segment testaceous; wings dusky at apex.

Hab.—Alameda Co., Cal. Taken in Sept. by A. Koebele.
Type No. 5019, U. S. Nat. Mus.

(3) **Miscophinus texanus** n. sp. ♀.—Length 5 mm. In general appearance this species closely resembles *M. californicus*, but the collar is brownish ferruginous, the clypeus, mandibles, scape, pedicel and legs ferruginous, the middle and hind coxæ at base behind, dusky or blackish; abdomen mostly dark rufous, the two or three apical segments blackish, the ventral segments blackish toward their base; the venation is similar to the two previous species, except that the submedian cell is somewhat shorter and the petiole of the second submarginal cell is much shorter, being scarcely one-third the length of the side of the cell.

Hab.—Bosque County, Texas. Coll. G. W. Belfrage.
Type No. 5020, U. S. Nat. Mus.

It may be well to state here that the type of *Nysson? inerme* Cr. is in the National Museum. Type No. 1714. As indicated by Cresson, it is not a true *Nysson*, but belongs to this group in the genus *Nitelopsis* Saunders. I cannot agree with Herr Kohl in suppressing this genus and merging it with *Solierella* Spinola. It forms a natural group between *Scaphentes* Handl. and *Sylaon* Piccioli.

———o———

NOTES ON MISSOURI SPHINGES.

By R. R. Rowley, Louisiana, Mo.

Of all our hawk-moths the larva of *Paonias excæcatus* is the most general feeder. In the Autumn of 1887 I experienced little difficulty in gathering together a great number of the caterpillars of this species, and while most of them came from apple and plum, others were found feeding on tame cherry, apricot, elm, sugar-maple, willow, sycamore and oak. The species is double brooded here and the larvæ may be found from June to mid-October, surviving severe frosts. It is a hardy "worm" and easily reared in bags or glass-jars, but suffers severely from the attacks of a small parasitic hymenopter whose cocoons we often see covering the whole body of the larva. There is some variation in the color of the imagoes, but the handsomest form and one of our prettiest hawks is a large female, the red of the hind wing beautifully blending with a rose-colored forewing.

Smerinthus geminatus is even more common than *excæcatus* at times, and I have found the larvæ abundant on *Populus tremuloides* and willow and sparingly on cottonwood and silver leaf. In searching for the eggs of this Sphinx on the underside of the leaves of aspen I was surprised to find many of them with pale pink blotches and occasionally entirely pink. Suspecting such eggs to have been attacked by some small parasitic hymenopter I was again surprised to obtain healthy larvæ from them—perfect pupæ and imagoes in time. The larva of *Geminatus* is more slender than that of *excæcatus* and somewhat smaller, but of two well defined types—one yellowish pea-green, the other blue-green. The larvæ of all *Smerinthoids* occasionally have lateral rows of red spots or blotches not so well defined as in *S. myops*. Fully half the larvæ of *Geminatus*, found on willow, have this character.

I have noticed but little variation in the imagoes. Have never yet found a specimen with a single instead of a double blue pupil in the eye spot. The pupa is easily distinguishable from that of *excæcatus*, as it is almost black against the brown of that species.

Smerinthus myops is rare with us, a single larva having been found by Mr. Ralph Sweet, of Curryville, Mo., on wild cherry. The caterpillar has lateral rows of beautiful and distinct red spots. I have found some variation in the imagoes, especially the males.

Neither *S. astylus* nor *S. cerisii* have been taken in Missouri by the writer, but the former might be sought for in the huckleberry hills of Callaway County and the Ozark region south of the Missouri River. The larva of *astylus* feeds on low huckleberry according to Miss Morton.

Triptogon modesta is not uncommon with us, and the larva is found on cottonwood, silver-leaf and aspen. Mr. Sweet has handled great numbers of the larvæ and has found them hardy and easily managed in muslin bags. The great size of the "worm" and its short caudal horn readily distinguish it.

Cressonia juglandis is rather rare. I have found the larvæ on walnut and hickory. Like *S. geminatus* the "worm" is of two types of color, yellowish green and blue-green. The body is long and slender, and the larval head long and sharp pointed. The pupa of this species differs much from all other Sphinx chrysalids, having a flattened, triangular appearance, posteriorly.

Elema may be found on the pine ridges of southern Missouri. I have not found it here.

I have not yet found *Deidamia inscripta*. The larva feeds on grape.

Everyx chærilus is not uncommon about Curryville. There are two seasonal broods. The imago is larger, but not more handsome than *E. myron*. The larva is found here on black paw (*Viburnum prunifolium*) and snow-ball. Have never found it on other plants. It may be easily reared in bags on snow-ball, but is singularly subject to the attacks of a hymenopterous parasite, so much so that few of the first brood seem to escape.

Of all our vine feeding hawks, *Everyx myron* is the commonest. Larvæ may be found from early Summer to late Autumn, and are easily recognized by the swollen thoracic region, small head and caudal horn, absent in the mature larva of *Philampelus*. There is a very noticeable difference in the color of the imagoes. In the Summer brood (from Summer larvæ in June and July) many of the moths have the rust-red over both wings, more or less obscuring the otherwise olive-green of the Spring imagoes from Autumn larvæ.

Patient search has thus far failed to find *Everyx versicolor*, though its food-plant, button bush, occurs along our streams. I am still sanguine of success. I feel sure it is among our hawks. The larvæ of all our species of *Everyx* pupate on the surface of the ground in loose cocoons of leaves, dirt and silk.

I have taken the imago of *Chærocampa tersa* at light, but have failed to find the larva. It is said to feed on button-weed. Mr. Ralph Sweet once found an imago fresh from the pupa, near a prairie brook or slough, but a search for the food-plant proved fruitless.

In 1886 the writer collected 25 larvæ of *Everyx myron*, 24 of *Ceratomia amyntor*, 6 of *Dolba hylæus*, 40 of *Paonias excæcatus*, 20 of *Daremma undulosa*. In 1887, 106 larvæ of *Smerinthus geminatus*, 24 of *Hemaris thysbe*, 12 of *Everyx chærilus*, 6 of *Triptogon modestus*, 36 of *Daremma undulosa*, 15 of *Hemaris diffinis*, 15 of *Paonias excæcatus*, 8 of *Philampelus achemon*. In 1897, 12 larvæ of *Philampelus achemon* and 13 of *Smerinthus geminatus*, 1 *Cressonia juglandis*, 4 *Dolba hylæus*, and an unknown *Sphinx* from trumpet creeper.

A NEW SPECIES OF POLYXENUS.

By TREVOR KINCAID, University of Washington.

In 1821 Thomas Say described a diplopod from the Southern States to which he gave the name *Polyxenus fasciculatus*.* Since that time the geographical range of this species has been considerably extended, but it has remained the sole representative of the suborder Pselaphognatha found within the limits of the United States, although at least one species has been recorded from the West Indies.

During the past few years the writer has collected at various points in western Washington specimens of a small, hairy myriopod belonging to the genus *Polyxenus*. A study of Say's description of *Polyxenus fasciculatus*, supplemented by specimens of the same supplied by Mr. Nathan Banks, showed that the Washington species was quite distinct from the form described by Say. In *Polyxenus fasciculatus* the antennæ are short and clavate, whereas in the species described below these organs are elongate and filiform. In this respect the new form resembles the common European *Polyxenus lagurus* De Geer, as described by Bode.†

Polyxenus pugetensis n. sp.—Color above yellowish white, the lateral portions of the dorsal segments and external margin of the head brown; ventral surface and legs pure white. Body narrow, sides of the dorsal segments parallel; head semicircular in outline, deflexed, the mouth-parts at postero-ventral margin; antennæ elongate, filiform, widely separated at base, arising from beneath the anterior margin of the head, composed of eight joints; first and second joints cylindrical and equal, third joint a little shorter, the succeeding four somewhat swollen in the middle, eighth joint only one-fourth as long as penultimate and bearing distally a group of four minute processes. Ocelli six on each side; two groups of five each are borne upon dark oval prominences in the middle of the lateral margins of the head; the sixth members lie in lobate, ventrally-directed extensions of the main ocellar prominences, and are not visible from above. Vibrissæ, two on each side, placed just anteriorly to the ocellar areas. Setæ brownish, except terminal pencil, which is silvery; each of dorsal segments two to ten bears near its posterior margin two rows of oppositely-directed, serrated setæ, the rows uniting externally, and the setæ in this region being directed outwardly; on the first segment the setæ are arranged in two irregular dorsal groups; from the middle of the posterior margin of the eleventh segment a loose tuft of long setæ

* Jour. Phila. Acad. ii, 108 (1821).

† Zeitschr. fur d gesammte Naturwissensch. xlix, 1877.

projects backward over the anal pencil; each lateral segment from two to ten is produced into an oval prominence from which projects a radiating fascicle of long setæ similar to those forming the dorsal rows; the basal area dorsally, and the ventral surface of the head are glabrous, but the central-dorsal region is crossed by two transverse rows of setæ, and the anterior region is thickly setate; a pair of setæ is usually present on the occiput; anal pencil formed of two dense fascicles of long, slender, delicately-spined hairs that terminate distally in enlarged, recurved, fimbriated processes. Length of adult specimens 3.0 mm.

Hab.—Western Washington. Usually found in damp places, beneath the bark of decaying logs, in moss, under dead leaves, etc. As a rule they are gregarious, and occur in colonies of considerable magnitude, but so far only females have been observed.

———o———

STUDIES IN CEPHALOIDÆ.

By Thos. L. Casey.

The very unexpected discovery of a remarkable divergence in tarsal and ungual structure, in a specimen from Placer County, California, recently sent to me by Mr. Fuchs under the name *Cephaloon bicolor* Horn, led me to investigate the material in my cabinet from a generic point of view, and to the conclusion that the genus *Cephaloon*, as heretofore known to us, is a complex of several genera having a strong family likeness among themselves. These genera may be distinguished as follows:

Tarsi slender, the penultimate joint unmodified, the claws nearly straight, arcuate at tip and pectinate within.

Appendage of the tarsal claws broad and obtusely rounded at apex.

Last joint of the maxillary palpi conical, the inner side but slightly shorter than the outer, the oblique apex short and straight; antennæ short, the last three joints broader, but not notably elongate . . . . . **Cephaloon** Newm.

Last joint of the maxillary palpi with the inner side very short, the apex strongly oblique and arcuate; antennæ longer and slender, the last three joints not notably enlarged or elongate, but differing in form and color from those which precede . **Sponidium** n. g.

Appendage of the tarsal claws very slender, acutely pointed at tip; antennæ very long and slender, the last three joints greatly elongated, but not at all broader . . . . . **Typitium** n. g.

Tarsi stouter and shorter, the penultimate joint quadrate, feebly bilobed and densely pubescent beneath, the claws subevenly arcuate, not at all pectinate within and non-appendiculate . . **Drachylis** n. g.

The genus *Cephaloon* has for its type *lepturides* Newm., which is distinguishable at once from any other species of the family by its short clavate antennæ. It inhabits the lake regions of North America.

The species of *Sponidium* are somewhat numerous, and are exclusively western, inhabiting the true Pacific coast faunal province. Those before me may be separated by the following characters from the female throughout:

Eyes separated on the front by about their own width; antennæ much longer than the head and prothorax together, the eighth joint but little longer than the ninth. Washington (State) . **tenuicorne** Lec.

Eyes separated on the front by very much less than their own width; antennæ but little longer than the head and prothorax, with the eighth joint generally much longer than the ninth.

Head shorter, the basal part, including the eyes, distinctly wider than long, the distance, from a vertical viewpoint, from the posterior limit of the eyes to the neck but little greater than the distance from the same point to the inner limit of the eye; prothorax but little longer than wide, broadly impressed along the middle anteteriorly. British Columbia (Caraboo District) . . **piceum** Horn.

Head more elongate, the basal part as long as wide, or very nearly; distance from the posterior limit of the eyes to the neck much greater than to the inner limit of the eye; prothorax distinctly longer than wide, generally unimpressed.

Neck broader, as wide as the interantennal distance, the nuchal constriction nearly straight across the dorsal surface. Idaho. **ornatum** Csy.

Neck more slender, distinctly narrower than the interantennal distance, the nuchal constriction strongly arcuate.

Tempora straight; distance from the epistomal suture to the eyes almost as great as the length of the epistoma; body testaceous, the elytra black throughout. Coast regions of middle California. **bicolor** Horn.

Tempora broadly and just visibly sinuate; distance from the epistomal suture to the eyes much less than the length of the epistoma; elytra generally pale, with the suture narrowly blackish. Rocky Mountains . . . . . **versicolor** Csy.

A specimen of *versicolor*, sent recently by Mr. Fuchs, is labeled "British Columbia (Caraboo District)." The species may possibly extend along the Rocky Mountains as far to the southward as Colorado.

Cephaloon ungulare, of LeConte, is the type and only species of *Typitium;* it is of unusually slender form and occurs in the northern Atlantic regions of North America.

The unique type of *Drachylis* may be described as follows from the female:

Drachylis simulans n. sp.—Form as in *Sponidium bicolor*, but slightly broader across the humeri, rufo-testaceous throughout, the elytra and metasternum black; pubescence minute, pale, decumbent and dense as usual. Head elongate, broadly convex, minutely, closely punctulate, the eyes separated on the front by very nearly their own width; palpi and antennæ missing in the type. Prothorax slightly elongate, of the usual campanulate form, with everted and acute basal angles; median line very feebly impressed near the middle; surface convex and minutely, closely punctulate. Scutellum rufous, rather pointed behind. Elytra three times as long as wide, two-fifths wider than the prothorax, the humeri slightly prominent, but rounded; sides more rapidly convergent and rounded toward tip, the individual apices rounded; disc minutely, closely punctulate, each elytron with two feeble, oblique ridges toward base; suture minutely margined; fifth ventral with a small, rounded notch at apex. Legs long and slender as usual, the tarsi short. Length 12.0 mm.; width 3.1 mm. California (Placer County).

The possession of thick and rather short tarsi, with absence of ungual appendage and pectination, renders this species profoundly different from the others of the family, and, in view of the extreme similarity to *Sponidium bicolor* in outward habitus, is indeed remarkable. The resemblance is so great as to have deceived Dr. Horn, who, upon cursory examination, placed the type example—kindly lent me by Mr. Fuchs—with typical individuals of his *bicolor* from the coast regions of the State (Proc. Cal. Acad. Sci. 2, vi, p. 381).

The general characters of the family have been given in some detail by the writer (Ann. N. Y. Acad. Sci. ix, p. 649). The paper of Dr. Horn, above referred to, was unknown to me at that time, and I am glad to find, from the types communicated by Mr. Fuchs, that there has been no confusion and redescription of species, the two described by me being amply distinct from those of Dr. Horn made known so short a time before.

———o———

RECOLLECTIONS OF OLD COLLECTING GROUNDS.

By H. F. WICKHAM, Iowa City, Iowa.

V.—THE COLORADO DESERT AND ITS ENVIRONS.

Along the boundary between California and Arizona lies a great valley traversed by the lower Colorado River. It is elevated but a few hundred feet above sea-level and is bordered on each side

by vast tracts of desert sand or hard-baked mud, with an occasional mountain chain raising jagged, irregular black peaks in the distance. The valley itself, in the immediate vicinity of the river, is more or less cut up by little sloughs or ditches, with a growth of willows along their banks, and the native Indians (Mojaves and Yumas) are able to produce crops of beans, melons and corn by irrigation. Except in close proximity to water the vegetation is of the dry, scrubby character peculiar to the southern part of our arid Sonoran region—the mesquite and screw-bean being about the only plants which can be said to attain the dimensions of trees. An occasional pond of alkaline water fills some depression, and during the driest weather wide stretches of mud lie between the banks marking the bed of the river and the edge of the stream itself.

The heat of this low-lying area is very great, although the drying winds from the adjacent deserts reduce the humidity and thus lessen liability to sunstroke. Still, when one is collecting in the thickets margining the water's edge, where no breeze is stirring, the sweat pours off in streams at the least exertion. When in the open an umbrella should be used as a protection. I have no means of securing any official data as to temperature, but have seen the thermometer standing, during an August afternoon, at 120° in the shade. On another occasion I noticed that it indicated over 100 degrees in an adobe house, about sunrise—so it had probably not gone lower, in the building, through the night.

The valley is crossed by the Southern Pacific Railroad at Yuma, and again by the Atlantic and Pacific at The Needles, about one hundred and fifty miles farther north, measuring directly across country. At the time of my visit a steamboat plied between these and other points. Comparatively little of the population is white, the majority being Indians or "greasers," as the mixed-blood Mexicans are called.

My first trip to the region was made in 1888, when, coming from the adjacent portion of Arizona, I arrived at The Needles early in August and remained for the few days necessary in making a cursory examination of the coleopterous fauna. The altitude, at the railroad station, is about five hundred feet. The river bottom is broad and grown up in places with weeds higher than a man's head. Hot winds, almost like draughts from a

furnace, come from the desert which rises in ridges to the west, and the rough pinnacles of The Needles Mountains lift—a black image of absolute desolation—to the southward. Not a promising ground surely, nor one in which a collector might look for much physical enjoyment to offset any failings in luck.

The season, also, was far advanced, but still the results of my stay were not to be despised. By rising before the sun I found it easy to get numbers of a fine green Buprestid, *Gyascutus planicosta*. It was abundant on a common schrub with small, thick, glossy leaves, and a sticky surface. This bush grew in large patches on gravelly flats, out of reach of any freshet from the river. Before the sun warmed the beetles into activity their capture was easy, but in the heat of the day it was almost impossible to approach them, since they took flight at such slight alarm. Beating bushes of other sorts brought me a great lot of *Hemiptychus* belonging to an undescribed species. They are of a bleached appearance in common with some other beetles of this ill-favored spot. *Ctenobium plumbeum* occurred with it, and in the same company I noticed *Cybocephalus californicus*, *Exochomus marginipennis*, *Hyperaspis lateralis* and *Coccinella abdominalis*. *Leguminosæ*—the screw-bean and its kind—yielded some *Tychius setosus* and an Apion, which, I suppose, is *ventricosum*.

Search along the river banks and on the margins of standing pools in the bottom-lands was productive of some interesting forms. *Cicindela tenuisignata* was tolerably abundant on alkaline mud, not a very convenient place for working with a net since it soon becomes clogged up. Over the shores run dozens of the little ant-like Carabid, *Ega lætula*, while in burrows, safely concealed, lie *Clivina dentipes* and *Dyschirius analis*, and these must be drowned out by flooding their dwelling. Under logs in damp spots I took *Chlænius ruficauda*, easily recognized by the reddish elytral tips. In like situations occur *Tecnophilus croceicollis*, *Tetragonoderus pallidus*, a number of *Brachinus*, several *Scarites subterraneus*, of the small form called *californicus*, and one or two *Thalpius hornii*. Other species, mostly small and inconspicuous, are not wanting. On the edges of the water in a shallow well, such as the Indians make, I took a few *Tetracha carolina*. In ponds water-beetles were plentiful—*Berosus subsignatus*, *B. infuscatus*, *Tropisternus limbalis*, *Hydrophilus triangularis*, *Ochthebius lineatus*, *Cœlambus medialis*, *Laccophilus*

mexicanus, *Coptotomus interrogatus* and *Cybister explanatus*. I have always thought this *Cybister* seemed to move more lazily than any of our large northern water-beetles.

Under ties and other railroad rubbish were to be found some very fine Tenebrionidæ, notably *Eleodes armata*, *Asida confluens* and *Cryptoglossa verrucosa; Notibius puberulus* and *Eurymetopon rufipes* were to be seen occasionally, but not in any numbers. I had expected to find the family well represented here, but my hopes were unfulfilled, still it is quite likely that more might be taken during the Winter. *Sphenophorus vomerinus* (var. *baridioides*) was seen once, a small colony having headquarters under a log near the river. *Atænius californicus* was the only common Scarabæid, though I came across two or three *Orsonyx anxius* and a *Polyphylla cavifrons*.

The most interesting task was catching the beautiful large click-beetle, *Chalcolepidius webbii*. This insect reaches a length of nearly an inch and a half, and is bluish with a broad cream-colored border. During the day it reposes on willows, usually too high up among the branches to reach by hand and the trees are too large to admit of the use of the umbrella or beating-net. In consequence it becomes necessary to climb for them, care being taken not to shake the trunk too much or the beetles take alarm and fly—first dropping a short distance—or else fall to the ground, where they are likely to be lost among the weeds. The more pains have to be taken because of the wasps building their nests in these same trees and they do not like intruders. Since few of the trunks are more than four inches or so in diameter it is no play to ascend them in a broiling sun.

My entomologizing along the river did not attract so much attention from the Indians as might be expected, probably because they have an inclination in that direction themselves. They pursue and catch the larger Acridiidæ, presumably for use as food, since I noticed that they placed them in receptacles as if for preservation. As this catching of locusts was done by adults it can hardly be considered simply a sport.

A rather remarkable effect of the extreme dryness of the air manifested itself during the preparation of insects after returning from the field. Usually, I empty a bottle of its contents at once and mount, or otherwise treat, the specimens at leisure, but here the hot winds dessicate them so rapidly that only a few could be exposed to the air at a time, otherwise those last handled would become brittle (in only a few minutes) and break at a touch.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., OCTOBER, 1898.

WE must again remind some of our subscribers that it costs money to publish the NEWS and they cannot expect us to send it to them gratis. Indeed, it is dishonest to take a journal from the post-office and not pay for it. If you do not want the NEWS frankly say so, and then we will know where we stand. We do not wish the NEWS to share the fate of "The Brooklyn Bulletin," "Papilio" and "Entomologica Americana," which are now memories of the past. One dollar a year is a small sum, and anybody who does not take one dollar's worth of interest in Entomology had better drop natural history.

"Before this meeting Papilio, so far as its present management was concerned, was doomed. An appeal to its subscribers, two months before, not for alms, but for money justly its due, had been answered by the receipt of the money owed it by three subscribers; in other words *the princely sum of six dollars* had been added to its treasury, though much over $150.00 was needed, and $200.00 was due,"—Editor "Papilio" 4, 187, 1884. *Then it died.* Then came "Entomologica Americana" and existed awhile *and then it died.* Where is the fault? What is the trouble? Shall it be said of ENTOMOLOGICAL NEWS, in the near future, *and then it also died?*

THE place of the lamented Dr. Lintner as entomologist of the State of New York has been filled by the governor by appointing to that position Mr. Mark Vernon Slingerland.

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc.D., New Brunswick, N. J.

Papers for this department are solicited. They should be sent to the editor, Prof. John B. Smith, Sc.D., New Brunswick, N. J.

Crude Petroleum as an Insecticide.—The use of kerosene against insects naturally turned attention to other oils of the same class and to different grades of the same oil. Experiments were made, therefore, with a number of them which have never been recorded, and as they all resulted in failures, probably never will be. The use of the crude petroleum was suggested to me by Mr. Lafayette T. Schanck, one of our Monmouth County fruit-growers, because he had employed it for many years in destroying lice on stock and for various garden insects. He claimed that it was as good an insecticide as kerosene and much less violent in its action on the subject, while kerosene would remove the hair from most of the animals to which it was applied, crude oil never did, but gave a better and cleaner coat, inducing a new and vigorous growth of hair on bare patches. His experiments on vegetation were too indefinite to quote, but there was enough in it to make me determine to try it if possible. In January I induced a grower to risk a row of dwarf pears, very badly infested with San José scale for dangerous experiments, and one of these trees was painted from the base to the tip of the twigs with crudé petroleum. The application was as thorough as it could be made with a brush and the tree turned a dark chestnut-brown at once. A few days afterward an examination on a bright sunny day showed the surface studded with drops of water that had condensed on it. Everything was penetrated by the oil and the tree was considered as hopelessly injured. The scales were simply soaked and great patches could be lifted up and removed without effort. In due season, however, this tree as well as those surrounding it showed the swelling leaf buds, and the foliage, as it developed, was even better and richer in color. Fruit buds were also developing normally, and there was nothing in the appearance of the tree to indicate that anything that could be considered an heroic application had been made. The twigs and all the wood, however, retained the oily appearance, on which a coating of dust was now forming, so that the tree looked almost black. Fruit set normally and a fair crop; a little less perhaps than on some other trees, and there were a few dead spurs on the tree; but as this was one of the scaliest trees in the orchard, and as others, no worse, died in part or entirely, although untreated, it would be unsafe to charge this to the petroleum. It was anticipated that the August sun would drive the oil into the tree and kill it, but even this was not the case, and up to the date of writing this tree is one of the most vigorous in the orchard, while the fruit is ripening normally, the pears—Duchesse—as perfect as any of their kind. The tree has made a better growth, with longer shoots, than any

other near by, and so far as appearance can be relied upon is perfectly healthy. The oil is yet apparent where it was applied, but beneath it the bark is perfectly normal. On the trunk and larger branches the bark which had become bound from the scale injury has split, and new, healthy bark is forming at the edges. Altogether, the tree looks as if it had received a new lease of life and seems in much better condition than ever before.

As to the scale—that has disappeared almost entirely. There were on September 14th perhaps two dozen scales on all the fruit on the tree, and there were a few on the new wood, but as all the surrounding trees are scaly and a scaly branch from a Standard partially overhangs the dwarf, these probably came on. A few larvæ attempted to set on the oily twigs, formed the white scale and died. Not a single scale beyond this stage was found on any of the treated twigs.

When it was realized that the Winter treated tree was not dead, but was even making a good start, about a dozen similar trees were sprayed with the crude oil when already leafed out and partially in bloom. The spraying was done from a wagon, one side being treated one day and the other several days later when the wind shifted. The spraying was very thorough each time, done with a McGowen nozzle and on each tree a few shoots near the centre were killed. The remainder of the trees developed normally and the fruit on September 14th was all that could be desired. The apparently stimulating effect of the oil was also noticeable here and the trees are now among the best of their kind instead of the poorest. The very worst infested trees were chosen for this experiment and the effect on the scale was all that could be desired.

The largest experiment was on an orchard of 200 Ben Davis apples eight years out and in fine general condition. This entire orchard was sprayed with crude oil April 14 to 22, and was as fully loaded with apples, September 10, as any similar untreated trees in the vicinity.

Other experiments need not be detailed here at present since my intention is not to recommend the crude oil unreservedly, but to bring it to the attention of entomologists as offering a good chance for study. All my experience points to this as less injurious to vegetation than kerosene, as spreading even more thoroughly and as at least as good an insecticide.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

MULES IN TROUSERS.—George Finney, an express wagon driver, has clothed his mules' forelegs in trousers. In speaking of it he said that flies bothered the forelegs of a four-footed animal more than they did the hind limbs, and he, therefore, having some respect for the comfort of his faithful servants had made a pair of trousers to protect them from the

pests. The trousers were supported by suspenders passed up over the backs of the animals.—*Nebraska State Journal.*

JOHN HABBERTON states that mosquitoes are extremely frightened by dragonflies and will not come within yards of them. He says that one or two dried dragonflies suspended from fine silk under the roof of an open porch infested by mosquitoes will scare all of the little pests away, and they will not come back while the dragonflies are there. This, he says, he has tried with surprising results. It is a well-known fact that dragonflies are predatory and voracious insects, and that they subsist largely upon gnats, midges and mosquitoes, and it is but natural that the mosquito, who is a wise insect, should regard the "spindle," "darning-needle" or dragonfly, as the small bird regards the hawk.

NOTE ON ANOPHTHALMUS.—A large series (175 specimens) of these interesting blind Carabids, collected in Mammoth Cave, Kentucky, by R. Ellsworth Call and myself, were of four species, viz.:

A. tellkampfii Erich.	80
menetriesii Mots	91
striatus Mots. (= *interstitialis* Hüb.) . . .	3
audax Horn	1
	175

Menetriesii is the most variable in size, and some specimens show traces of pubescence. Each of these species is easily separated from the others by the shape of the thorax. The type of *audax* was from Ronaldson's Cave, Kentucky. It has the thorax wider than long and nearly as wide at base as apex. It is a small species. This is, I believe, the first record of the occurrence of *audax* in Mammoth Cave. I searched the caves in Carter County, Kentucky, viz.: "Bat," "X," "Laurel" and "Saltpetre" Caves, but failed to find *Anophthalmus* in either of them.—CHARLES DURY, Avondale, Cincinnati, Ohio.

THERE are at present 2864 volumes in the library of the American Entomological Society, including 111 volumes of pamphlets averaging fifteen titles to the volume. The various departments are represented as follows: Journals, 1436; Coleoptera, 389; General Entomology, 341; Lepidoptera, 214; Economic Entomology, 122; Hymenoptera, 101; Diptera, 86; Miscellaneous, 61; Hemiptera, 49; Orthoptera, 40; Neuroptera, 25. This represents an increase of nearly 100 per cent since 1888, when the total number of volumes was 1445.

In the library of the Academy of Natural Sciences of Philadelphia there are 1221 volumes, exclusive of journals, and 1188 pamphlets, devoted entirely to Entomology. The pamphlets form 77 additional volumes.

While the books of one library are partially duplicated by the other, yet it is safe to say that the foremost collection of entomological books in America is to be found in the building of the Academy of Natural Sciences of Philadelphia, where both libraries are situated.—W. J. FOX.

MAY 14th a pair of *Leucarctia acræa* were captured *in coitu* on a plum tree. They were put in a breeding-cage, and on the 15th and 16th the female laid 728 eggs in three patches. One on the day of the 15th, one that night, and one the following day. They were laid in almost a square. The rows of eggs were closely placed beside each other, but scarcely touching, while the eggs in each row were apparently joined. In size about mm. and about globular shape; color lemon-yellow and darker to a deep yellow; changed fast with age to a deep blue before hatching. All hatched on the morning of May 30.

May 28 a stem of dead plum was found containing 598 eggs, all in one patch and in five rows lengthwise of the stem. Commenced hatching May 30; thirty-three failed to hatch. In both cases the young larvæ fed on the empty egg-shells first, cleaning them off to the surface of the wood. They were afterward fed on plum and a number were grown to maturity. —E. G. TITUS, Fort Collins, Colo.

Entomological Literature.

Under the above head it is intended to note such papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in **heavy-faced type** refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. Titles of all articles in foreign languages are translated into English; usually such articles are written in the same language as the title of the journal containing them, but when such articles are in other languages than English, French, German or Italian, this fact is indicated in parenthesis.

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4. The Canadian Entomologist, London, Ont., '98.—**5.** Psyche, Cambridge, Mass., Sept., '98.—**7.** U. S. Department of Agriculture, Division of Entomology, Washington; circulars, second series, '98.—**8.** The Entomologist's Monthly Magazine, London, Sept., '98.—**11.** The Annals and Magazine of Natural History, London, Sept., '98.—**13.** Comptes Rendus. Societe de Biologie, Paris, July 30, '98.—**26.** Appleton's Popular Science Monthly, New York, Sept., '98.—**40.** Societas Entomologica, Zurich-Hottingen, '98.—**42.** Journal of the Linnean Society, London, —**45.** Deutsche Entomologische Zeitschrift, '98, I Lepidopt. Heft, Berlin, etc., Aug. 10.—**46.** Tijdschrift voor Entomologie, xli, 1. The Hague, July 30, '98.—**81.** Biologisches Centralblatt, Erlangen, '98.—**86a** Annales, **86b** Bulletin, Société Entomologique de France, '96. Rec'd. Aug. '98.—**87.** Revue Scientifique, Paris, '98.—**88.** Actes, Société Linneenne, Bordeaux, lii, '97.—**89.** Zoologische Jahrbücher, xi, 5, Jena, Aug. 15, '98.—**90.** Gartenflora, Berlin, '98.—**91.** Il Naturalista Siciliano (n. s.), ii, 5-8, Palermo, July 15, '98.

The General Subject.—Beecher, C. E. The origin and significance of spines: a study in evolution (cont.), figs., American Journal of Science, New Haven, Sept., '98.—Bignell, G. C. Photographic en-

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Economic Entomology.—Chittenden, F. H. A new squash bug, **4,** Sept.; The larger apple-tree borers, figs., **7,** No. 32, July 1.—Felt, E. P. Elm-leaf beetle in New York State, figs., 5 pls., Bulletin New York State Museum, v, 20, Albany, June, '98.—Frank and Krüger, F. The European allies of the San José scale, **90,** Aug. 1.—Howard, L. O. Remedial work against the Mexican cotton-boll weevil, **7,** No. 33, July 1; House flies, figs., **7,** No. 35, July 11.—de Joannis, J. Cornivorous larvæ, **87,** Aug. 13.—Kenyon, F. C. Abstracts of recent publications, Experiment Station Record x, 1. U. S. Dep't Agric. Washington, '98.—Klein, O. *Vedalia cardinalis* as opponent of *Icerya Purchasi*, **90,** Sept. 1.—Marchal, P. On two new Cecidomyids living on the potato and on the Hedera, figs., **86b.**—Marlatt, C. L. House ants, figs., **7,** No. 34, July 6; The true clothes moths, figs., **7,** No. 36, July 18.—Mayet, V. Note on *Margarodes vitium* Giard, **86b;** The scale-insect of the vines of Chili, *Margarodes vitium* Giard, **86a,** 3, May, '97.—Placzek, B. Protection of birds or of insects? Verhandlungen des naturforschenden Vereines in Brünn, xxxv, '97.—Vayssière, A. Description of *Pentaphis marginata* Koch, an Aphid which attacks wheat, 1 pl., Annales de la Faculté des Sciences de Marseille, viii, '98.—Wilcox, E. V. The internal chicken-mite (*Cytodites nudus vizioli*), Journal of Comparative Medicine and Veterinary Archives, Philadelphia, August, '98.

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Neuroptera.—Barrois, C. et al. Observations on the phenomena of flight of dragonfiies, **86b.**—Currie, R. P. New species of North American Myrmeleonidæ, iii,* **4,** Sept.—Haviland, G. D. Observations on Termites, with descriptions of new species, 4 pls., **42,** Zool. xxvi, 169; April 1, '98.—Meunier, F. The fossil Agrionidæ of the Museums of Munich and Harlem, 3 pls.; Note on some insects of the schists of Solenhofen, 1 pl., **86a,** 1, Dec., '96.—Williamson, E. B. September dragonflies of Round and Shriner Lakes, Whitley Co., Indiana, 22nd Annual Report, Dep't of Geology and Natural Resources, Indiana, '97. Indianapolis, '98.

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Coleoptera.—Anon. A "rain of beetles," **40,** Sept. 1.—Anon.

W. Biedermann on the digestion of the larva of *Tenebrio molitor*, Naturwissenschaftliche Rundschau, Braunschweig, Aug. 27, '98.—Balbi, E. Deformities and monstrosities of Coleoptera, **91.**—Belon, R. P. Description of an unpublished Cerambycid of the group Disteniini, **86b.**—Fletiaux, E. Note on the genus *Fornax*, **86b.**—Gadeau de Kerville, H. Sexual perversion in male Coleoptera, fig., **86b.**—Grandis, V., and Muzio, G. On the process of assimilation of *Calladium sanguineum* Fabr. Archives Italiennes de Biologie xxix, 2, Turin, '98.—Grouvelle, A. Description of two Dryopidæ of the genus *Lutrochus* Er. with a general table of the species; Remarks on the nomenclature of the Dryopidæ and of the Helmidæ, **86b;** Nitidulidæ, Colydiidæ, Cucujidæ and Parnidæ, collected by M. E. Gounelle in Brazil, and other new American Clavicorns, figs * **86a,** 2, Apr., '97; Clavicorns of Grenada and of St. Vincent (Antilles) collected by Mr. H. H. Smith and belonging to the Museum of Cambridge; Notes from the Leyden Museum, xx, '98.—Keen, J. H. A new Cychrinid,* **4,** Aug.—Kerremans, C. Buprestidæ of the voyage of E. Simon to Venezuela; Buprestidæ collected in tobaccos by the care of M. A. Grouvelle, **86a,** 1, Dec., '96.—Lesne, P. Revision of the Coleoptera of the family Bostrychidæ, i, figs , 2 pls., **86a,** 1, Dec., '96; Synonymic notes on the hypocephalic Bostrychidæ, **86b.**—Lewis, G. On new species of Histeridæ and notices of others,* **11.**—Pic, M. Synonymic remarks on the Anthicidæ of the United States; Description of a Heteromerous Coleopter from Brazil, **86b.**—Raffray, A. Description of new species of Pselaphidæ from southern Brazil collected by M. E. A. Göld; Synonymic notes on Pselaphidæ, **86a,** 1, Dec., '96; New studies on the Pselaphidæ and Clavigeridæ,* 2 pls., **86a,** 2, April, '97.—Viturat, l' Abbé, and Fauconnet, L. Analytic and methodic catalogue of the Coleoptera of Saone-et-Loire and the neighboring departments, Bulletin, Société d'Histoire Naturelle de Autun, x, '97.

Diptera.—Blanchard, R. Contributions to the study of parasitic Diptera, iii, 3 pls., **86a,** 4, Dec., '97.—Chobaut, Dr. Observations on a dipter living on *Ateuchus*, **86b.**—Coquillett, D. W. Additions to my synopsis of the Tachinidæ,* **4,** Sept.—Janet, C. On the 'filets arqués' of the antennæ of *Xylodiplosis*, figs., **86b.**—Kieffer, J. J. On the 'filets arqués' of the antennæ of Cecidomyidæ, figs.; On the transformations of certain organs in the larvæ of Cecidomyia, figs., **86b.**—Lesne, P. Habits of *Limosina sacra* Meig. (fam. Muscidæ), phenomena of mutual transportation in articulated animals, origin of parasitism in Diptera **86b.**—Wandolleck, B. The Stethopathidæ, a new wingless and haltereless family of Diptera, 2 pls., **89.**

Lepidoptera.—Badenoch, M. T. D. The case moths, figs., **26.**—Dyar, H. G. Concerning *Xanthorhœ glacialis* Hulst, **4,** Aug.—Féré, C. Experiments on the sexual instinct of *Bombyx*, **13.**—Fruhstorfer, H. Monographic revision of the Nymphalid groups *Symphædra* and *Adolias; Agrias aurantiaca* Fruhst.; *A. bolivensis*, 1 pl., **45.**—

Gauckler, H. Experiments with low temperatures on *Vanessa* pupæ, **45.**—Grote, A. R. Note on the diurnals, **4,** Aug.—Hulst, G. D. Descriptions of new genera and species of the Geometrina of North America,* **4,** Aug.—Lathy, P. L. A new species of *Sphænogona* from Jamaica, **8.**—Lucock, F. Food-plant of *Euphanessa mendica*, **4,** Sept.—Moffat, J. A. *Deidamia inscripta* Harr. **4,** Aug.—Piepers, M. C. New observations on the flights of Lepidoptera, Natuurkundig Tijdschrift voor Nederlandsch-Indië, lvii, Batavia and The Hague, '98; The phylogeny of the colors of the Pieridæ, Tijdschrift der nederlandsche Dierkundige vereeniging (2), v, 2-4, Leyden, June, '98.—Staudinger, O. Some new South American forms of *Papilio*, **45.**—Thierry-Mieg, P. Descriptions of nocturnal Lepidoptera, **86b.**—Sykes, M. L. Natural selection in the Lepidoptera, 8 pls., Transactions, Manchester Microscopical Society '97, July 16, '98.

Hymenoptera.—Ashmead, W. H. Classification of the horntails and sawflies, or the sub-order Phytophaga, iii, iv, **4,** Aug., Sept.—Cockerell, T. D. A. Note on a Chalcidid of the subfam. Encyrtinæ, parasitic on *Phenacoccus minimus*,* **4,** Aug.; On some small bees from Arizona,* **4,** Sept.; The North American bees of the genus *Prosapis* (cont.), Entomologist, London, Sept., '98.—Emery, C. Ants of the genera *Sysphincta*, *Proceratium*, *Macromischa*, **86b.**—Ferton, C. New observations on the instinct of gastrilegid Hymenoptera of France and of Corsica, 1 pl.; New observations on the instinct of the Pompilidæ, **88.**—Gounelle, E. Transportation of earth effected by ants in Brazil, **86b.**—Gribodo, J. Notes on the biology of the Chrysidæ, **86b.**—Joannis, J. de. On a new case of parasitism observed in *Chrysis shanghaiensis* Sm , a Chrysid parasite of a Lepidopter, **86b.**—Kieffer, J. J. Cynipidæ in Andre's Species des Hyménopteres d'Europe et d'Algerie, vii, 63e fascicule, Paris, July 1, '98.—Konow, F. W. Synonymic and critical remarks on species of Tenthredinidæ not, or incorrectly, referred, **40,** Aug. 1, 15.—Langhoffer, A. Contributions to the knowledge of the mouth-parts of Hymenoptera, i, Apidæ, **81,** Aug. 15.—Wasmaun, E. First supplement to the ant guests of Dutch Limburg, with biological notes, **46;** A new reflex-theory of ant-life, **81,** Aug. 1.

Doings of Societies.

At the meeting of the Feldman Collecting Social, Prof. J. B. Smith described the habits of the larvæ of *Cicindela generosa*. Their burrows extend from 15 inches to 2 and 3 feet into the ground, and is a long, goose-necked affair opening into a pit, which serves as a trap for their prey.

Mr. Wenzel said that the larvæ of *C. dorsalis* tunnels a straight burrow.

Prof. Smith gave further results of his examination of bee-cells. Dipterous parasites had been found therein. *Andrena*, of which three species had been observed, showed that each species has characteristic burrows. Some species extend their burrow for several feet and build a cell at the bottom, which is covered, and another one built further up, until the burrow is lined with numerous cells. The newly-hatched imago must, therefore, in some instances, dig a considerable distance before reaching the surface of the ground.

Dr. Henry Skinner showed unidentified larvæ from stems and leaf-petioles of sugar maple; it is very destructive, causing the leaves to fall in large numbers.

Mr. C. W. Johnson exhibited *Serocomyia bifasciata*, *S. militaris*, *Brachyopa notata* and a species of *Helophilus* from North Mountain, Pa., all of which were not recorded hitherto from Pennsylvania. The *Helophilus* may be *H. porcus* Walker.

The date of meeting was changed from the second Tuesday to the third Wednesday of each month.

WILLIAM J. FOX, *Secretary*.

OBITUARY.

ERNEST CANDEZE, M D., F. E. S., the learned monographer of the Elateridæ, an accomplished entomologist and writer, died at Liége on June 30th, after a short illness from angina pectoris, in his 72nd year, deeply mourned by a large circle of personal friends.—*Entomologist's Monthly Magazine.*

ENTOMOLOGICAL NEWS for September was mailed August 30, 1898.

EXCHANGES

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Coleoptera.—Wanted to purchase species of *Nomaretus*, *Cychrus*, *Carabus* and *Calosoma*.—A. Luetgens, 14 W. 17th St. New York City.

Lepidoptera.—*Morpho polyphemus*, *Caligo uranus*, *Antheræa chapata* and other rare Mexican species for exchange. Correspondence solicited. —O. W. Barrett, Clarendon, Vt.

Lepidoptera.—Will exchange anything in my collection, or collect in any branch, for works on any families of Lepidoptera not already in my library.—O. C. Poling, Quincy, Ill.

In the coming season will exchange for exotic Lepidoptera, also native cocoons and pupæ of Lunas: *Cecropia*, *Polyphemus*, *Regalis*, *Imperialis*, *Sm. myops*, *excæcatus*, *A. rubicunda* and many others. Send for list.—George Krautwurm, Arlington Place, Lincoln Ave., E. E. Pittsburg, Pa.

Homoptera.—Wanted Jassidæ and Cercopidæ. Will exchange or purchase.—E. W. Ball, Ft. Collins, Colo.

Lepidoptera of India and Europe for exchange; ova yamamai for sale. *Carabus olympiæ* for sale and exchange. Wanted live cocoons.—Emil Heyer, Moritzstrasse 8, Elberfeld, Germany.

Will name and return species of *Nonagria* and *Hydræcia* for the privilege of retaining desirable species a brief period for purposes of study. —John B. Smith, New Brunswick, N. J.

Lepidoptera.—Cocoons of *P. cecropia*, *T. polyphemus* and *C. promethea* to exchange for Lepidoptera not in my collection.—C. D. Heim, 156 Fourth St., Sunbury, Pa.

Fine Ornithoptera: *Miranda* ♂♀, *Andromache* ♂♀, *Brookiana* ♂♀, *Druryia antimachus*, etc., and Bornean Bflies in exchange (for other exotics). Butterflies only, or buy other rare species.—W. Dannatt, F. E. S., Ivy Dene, Westcombe Park, London S. E. England.

Wanted.—Live pupæ of *Luna*, *Io*, *Imperialis*, *Regalis*, etc., will exchange bird skins, eggs, stuffed birds, etc.—John Clayton, Lincoln, Me.

"Cocoons of *Cecropia*, *Cynthia* and *Promethea* for exchange for some cocoons of *Luna* and *Polyphemus*.—Mathias Mertz, 66 Leonard St., N. Y. City.

I will take in exchange for rare and beautiful exotic butterflies, living pupæ and cocoons of *Pap. ajax*, *zolicaon*, *cresphontes*, *Sm. modestus*, *astylus*, *Eacles regalis*, *imperialis*, *Plat. gloverii*, *A. ceanothi*, *columbia* and others.—Chas. F. Timm, 62 Ralph St, Brooklyn, N. Y.

For exchange.—Insect Life, vol. i, 1–2; vol. iii, 1–6. Price 15c. each.—Eugene R. Fischer, 2707 Winnebago St., St. Louis, Mo.

Lepidoptera.—Exchange wanted from all other parts of the United States and Canada for specimens from northeastern Pennsylvania. Correspondence solicited.—Alfred E. Lister, 921 Vine St., Scranton, Pa.

Geometridæ wanted.—Will purchase or give good exchange in other Lepidoptera. Send lists and prices.—Edw. W. Cross, Manchester, N. H.

Longicorn beetles and Parnassius and Pierids in papers wanted in exchange for about 150 species of Orthoptera and Papilios (my own collection), many rarities included.—John Watson, 94 George St., Alexandra Park, Manchester, England.

Odonata.—I want dragonflies from any locality in America, and will exchange for same. Will collect in any order in this region for cash.—M. J. Elrod, University of Montana, Missoula, Mont.

Lepidoptera.—Living pupæ of *Eacles imperialis* for exchange.—H. Meeske, 321 Wyckoff Ave., Brooklyn, N. Y.

Lepidoptera.—Exchange desired with collectors everywhere. I offer Lepidoptera, and will also collect in other orders. Send lists.—Ernest N. Laing, Essex, Ontario, Canada.

Wanted.—Tingitidæ especially from the U. S. All specimens sent for determination will be returned.—F. M. McElfresh, Urbana, Ill.

Tipulidæ.—Will exchange in any order for North American Tipulidæ.—C. V. Piper, Agricultural College, Pullman, Wash.

Am open to collect any order that is required this season to be found in Colorado. Correspondence solicited.—Ernest J. Oslar, 1853 Marion St., Denver, Col.

Lepidoptera.—I have a very large number of rare species of American butterflies in duplicate. Liberal exchange given for desiderata.—Dr. Henry Skinner, Acad. Nat. Sci., 1900 Race St., Phila., Pa.

Tettigidæ.—Specimens of this Orthopteran group wanted from any locality.—J. L. Hancock, 3148 Indiana Ave., Chicago, Ill.

Will exchange butterflies of Missouri and the more common ones of central Texas for others from any part of the U. S. Common ones taken.—H. Schwarz, 1520 Lafayette Ave., St. Louis, Mo.

Lepidoptera.—Will purchase examples of *Hemaris* and *Lepisesia*. Advise condition and price.—Beverly Letcher, 532 California Street, San Francisco.

Butterflies.—I will give Indian and S. American butterflies in exchange for American I will also pay cash for same. Send list with lowest price to Wm. D. Denton, Wellesley, Mass.

Texas Lepidoptera.—Pure and well stretched—to be exchanged. A good many specimens in stock.—Jos. Mattes, 115 Ash St., Logansport, Ind.

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Lepidoptera.—I have for exchange pupæ of rare Spinxes, also good material in papers. Will exchange for native and exotics. Send list.—W. Rienecker, 562 Nelson Ave., Jersey City, N. J.

Lepidoptera.—Exchange wanted from all countries, Sphingidæ and Saturniidæ especially desired. Rare cocoons wanted. Address Henry Engel, 153 26th St., S. S., Pittsburg, Pa.

Coleoptera.—Fresh Texas Coleoptera for exchange.—G. Birkmann, Fedor, Lee Co., Texas.

Coleoptera from U. S. for exchange. Send lists. Wish to buy or exchange coleopterological works not yet in my library.—Dr. A. Fenyes, Pasadena, Cal.

Lepidoptera.—Wanted specimens of the family Arctiidae. Will give other Lepidoptera in exchange.—W. E. Longley, 115 64th Ave., Oak Park, Ill.

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